WESTERN SOFTWOOD PLYWOOD

(Second Edition)

COMMERCIAL STANDARD CS122-49

Supersedes CS122-45

Effective Date for New Production from December 20, 1949

A Recorded Voluntary Standard of the Trade

Established through
U. S. DEPARTMENT OF COMMERCE
Charles Sawyer, Secretary
NATIONAL BUREAU OF STANDARDS
E. U. Condon, Director

This preprint of the standard issued by:
DOUGLAS FIR PLYWOOD ASSOCIATION
Tacoma 2, Washington

COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Divison of the National Bureau of Standards. The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform basis for fair competition.

The adoption and use of a Simplified Practice Recommendation or Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce through the Government Printing Office.

COMMERCIAL STANDARD FOR WESTERN SOFTWOOD PLYWOOD

A recommended commercial standard for Western hemlock plywood was circulated to manufacturers, distributors, and users on November 18, 1944, for acceptance, and was subsequently approved for promulgation and publication as Commercial Standard CS122-45, Western Hemlock Plywood.

A recommended revision submitted by the Douglas Fir Plywood Association, and endorsed by the standing committee, was circulated on August 11, 1949, to the trade for consideration and acceptance. Those concerned have since accepted and approved the revised standard as set forth herein.

Project Manager: J. W. Medley, Commodity Standard Division, National Bureau of Standards.

Technical Adviser: V. B. Phelan, Building Technology Division, National Bureau of Standards.

COMMERCIAL STANDARD CS122-49
FOR
WESTERN SOFTWOOD PLYWOOD

1. PURPOSE

1.1 Because of the increasing economic importance of various western softwoods, (other than Douglas fir, ponderosa pine, and sugar pine) in the manufacture of plywood, the following standard grading rules are offered as a universal basis of understanding in industry. [1]General adoption and use of this standard will facilitate procurement of the proper grade of material for its varied uses and provide a better understanding between buyer and seller. Architects, engineers, contractors, industrial users, and home owners will thus be able to specify their needs from nationally accepted grading standards.

2. SCOPE

2.1 These grading rules cover eight grades each of **Interior type** and **Exterior type** western softwood plywood, which is a laminated board for paneling, sheathing, cabinet work, and many structural and industrial uses. In addition, there are included tests, standard sizes, size tolerances, inspection rules, and nomenclature and definitions.

3. DEFINITION

3.1 Western softwood plywood is a built-up board of laminated veneers in which the grain of each piece is at right angles to the one adjacent to it. The kiln-dried veneer is united under high pressure with a bonding agent, making the joints as strong as or stronger than the wood itself. The alternating direction of the grain with each contiguous layer of wood equalizes the strains and in this way minimizes shinkage and warping of the product and prevents splitting.

4. SPECIES

4.1 Western softwood plywoods, for the purposes of this standard, include cedar (Alaska, Port Orford and Western red), California redwood, Western (Idaho) white pine, Sitka spruce, Western larch, Western hemlock, Noble fir, and the commercial white firs. Douglas fir may be used for cores and crossbands in all panels unless otherwise specified.

5. PANEL DESIGNATION

5.1 In every panel, the same species of wood used for the face shall also be used for the back, or opposite face, and **this species** shall serve to designate the **kind** of plywood for that panel.

6. INTERMIXING OF SPECIES

6.1 All inner plies, except the core or center ply, shall occur in pairs, and the two plies of each pair shall be of the same species, thickness, and direction of grain, but placed on opposite sides of the core. In general, panels shall admit veneer from any western softwood for inner plies, except that **Exterior type** CEDAR or REDWOOD panels shall have all inner plies of these species or of Douglas fir.

7. GENERAL REQUIREMENTS

7.1 All Western softwood plywood sold as of commercial standard quality shall meet the following general requirements.

7.1.1 **Workmanship.**—Unless otherwise specified, Western softwood plywood shall be sanded on two sides to meet veneer requirements as set forth in paragraph 9.1 and 9.2. When specified rough or unsanded, plywood may have paper tape on either face or back, or both. It shall be well manufactured and free from blisters, laps, and defects except as permitted in the specific rules for the various grades.

7.1.2 **Bonding.**—The entire area of each contacting surface of the plywood shall be bonded in an approved manner with an adhesive conforming to the performance standards for its type as set forth in paragraphs 12.2 and 12.3. No tape shall be permitted in the glue line.

7.1.3 **Loading or Packing.** — The plywood shall be securely loaded or packed to insure delivery in a clean and serviceable condition.

8. DETAIL REQUIREMENTS

8.1 Western softwood plywood is made in two types, **Interior (Int.)** and **Exterior (Ext.)**, the type referring to the moisture resistance of adhesives bonding the plies together. Within each type there are several grades, which are established by the quality of the veneer on both sides of the panel as hereinafter defined. The grade descriptions set forth the minimum requirements, and therefore, the majority of panels in any shipment will exceed the specification given.

9. VENEERS

9.1 **Thickness.**—Veneers shall be 1/12 inch or more in thickness before sanding in panels ¼ inch and thicker.

9.2 **Qualities.**—Veneer qualities used in the different plywood grades shall be one of the following, except in center veneer of **Interior type panels** with five or more plies.

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[1] Grading rules for Douglas fir plywood are given in Commercial Standard CS45-48, and for ponderosa pine and sugar pine plywood in Commercial Standard **CS157-49.**

9.2.1 **Quality A1.**—Quality **A1** veneer shall be of one or more pieces of firm, smoothly cut veneer. When of more than one piece, it shall be well joined and reasonably matched for grain and color at the joints. It shall be free from knots, splits, checks, pitch pockets, and other open defects. Slight discoloration, heat and sap streaks shall be admitted but no blue stain. Tightly closed end-checks, shims not more than 3/16-inch wide that occur at ends of panels, and inconspicuous well matched small patches not more than 2 inches long shall be admitted. This grade shall present a suitable surface for natural, light stain or enamel finish.

9.2.2 **Quality A.**—Quality **A** veneer shall be of one or more pieces of firm, smoothly cut veneer. When of more than one piece, it shall be well joined and reasonably matched for grain and color at the joints. It shall be free from knots, splits, pitch pockets, and other open defects. Streaks, discolorations, sapwood, shims and neatly made patches shall be admitted, as shall black streaks in Western hemlock. This grade shall present a smooth surface suitable for painting.

9.2.3 **Quality B.**—Quality **B** veneer shall present a solid surface, free from open defects but in addition to characteristics admitted in Quality A veneer, shall admit also neatly made circular plugs, as well as synthetic plugs that present tight, smooth, hard surfaces, knots up to 1" if both sound and tight, tight splits, slightly rough but not torn grain, and other minor sanding and patching defects. Clusters of knots, accompanied by pitch are prohibited. The grade shall be paintable.

9.2.4 **Quality C.**—Quality **C** veneer may contain knotholes not larger than 1 inch in least dimension, open pitch pockets not wider than 1 inch, splits not wider than 3/16-inch which taper to a point, worm or borer holes not more than ⅝-inch wide or 1½ inches long, knots if tight and not more than 1½ inches in least dimension, and plugs, patches, shims, sanding defects and other characteristics in number and size that will not impair the serviceability of the panel.

9.2.5 **Quality D.**—Quality **D** veneer (may be used only in Interior type grades) shall contain no knotholes greater than 2½ inches in maximum dimension, no pitch pockets more than 2 inches wide by 4 inches long or equivalent area if of lesser width, no splits wider than ½-inch; splits ½-inch wide at widest point may be one-fourth panel length; those not more than ¼-inch wide at widest point may be half-panel length; and those not more than 3/16-inch wide may be full-panel length, but all splits shall taper to a point at one end. Any number of plugs, patches, shims, worm or borer holes, sanding defects and other characteristics are permitted provided they do not seriously impair the strength or serviceability of the panel.

10. INTERIOR TYPE

10.1 **Interior type** consists of plywood with a high degree of moisture resistance where its application requires that it shall retail its original form and practically all its strength when occasionally subjected to a thorough wetting and subsequent normal drying. This type of plywood is suitable for construction where subjected to occasional deposits of moisture by condensation through walls or leakage or from other sources. **Interior type** shall meet the test requirements set forth in paragraphs 12.2 and 12.4.1. This type is available in the grades given in Table 1.

Table 1.—Interior type grades—construction and minimum quality of veneers.

Interior Grades[1]	Face	Back	Inner Plies	Additional Limitations (See also paragraphs 3.1 to 9.2.5)
A1-A1 Interior	A1	A1	D	Sanded 2 Sides
A1-D Interior	A1	D	D	Sanded 2 Sides
A-A Interior	A	A	D	Sanded 2 Sides
A-B Interior	A	B	D	Sanded 2 Sides
A-D Interior	A	D	D	Sanded 2 Sides
B-C Interior	B	C	D	Sanded 2 Sides
C-D Interior (Sheathing)	C	D	D	Unsanded grade
B-B Interior (Concrete form)	B	B	C	Sanded 2 Sides (Made only in spruce and pine.) Edge-sealed and, unless otherwise specified, mill-oiled.

[1] Grades A1-A, A1-B, and A1-C available on special order only.

11. EXTERIOR TYPE

11.1 **Exterior type** represents the ultimate in moisture resistance—a plywood that will retain its original form and strength when repeately wet and dried and otherwise subjected to the elements, and which is suitable for permanent exterior use. It shall be free from both core gaps and core voids that impair the strength or serviceability of the panel. All veneer used in **Exterior type** panels shall be of **C** quality or better. All **Exterior** panels shall be so designated by a distinctive symbol, **"Ext,"** branded or stamped on the edge of each panel. Plywood of this type shall meet the test requirements set forth in paragraphs 12.3.1, 12.3.2, 12.3.3, 12.4.2 and 12.4.2.1. This type is available in the grades given in Table 2.

Table 2.—Exterior type grades—construction and minimum quality of veneers.

Exterior Grades[1]	Face	Back	Inner Plies[2]	Additional Limitations (See also paragraphs 3.1 to 9.2.5)
A1-A1 Exterior	A1	A1	C	Sanded 2 Sides
A1-C Exterior	A1	C	C	Sanded 2 Sides
A-A Exterior	A	A	C	Sanded 2 Sides
A-B Exterior	A	B	C	Sanded 2 Sides
A-C Exterior	A	C	C	Sanded 2 Sides
B-C Exterior	B	C	C	Sanded 2 Sides
C-C Exterior	C	C	C	Unsanded grade—no belt sanding
B-B Exterior (Concrete Form)	B	B	C	Sanded 2 Sides (made only in spruce and pine). Edge-sealed and, unless otherwise specified, mill-oiled.

[1] Grades A1-A and A1-B available on special order only.

[2] **Exterior type** cedar and redwood panels shall have all inner plies of cedar, redwood or Douglas fir only.

12. TESTS

12.1 **Sampling.**—Ten test panels shall be taken at random from any shipment. Test panels shall be selected to represent as many variations in grades and thicknesses as possible. Test panels shall also be selected from locations distributed as widely as is practicable throughout the shipment. From each **Exterior panel** selected, three test pieces shall be cut at random, and from each test piece, 10 test specimens shall be cut. From each **Interior** panel selected, a 6- by 6-inch test piece shall be cut from each end approximately at mid-width of the panel, and from each edge approximately at mid-length of the panel, while a fifth piece shall be cut from somewhere near the middle or center of the panel.

12.2 **Test for Interior type.**—The test pieces shall be submerged in water at room temperature for a period of 4 hours, and then dried at a temperature not to exceed 100°F for a period of 20 hours. This cycle shall be repeated until all samples have failed, or have completed 15 cycles.

12.3 **Test for Exterior type.**

12.3.1 **Cold-soaking test.**—Five shear specimens shall be cut from each test piece, as indicated in figure 1.

If the number of plies exceeds three, the cuts shall be made so as to test any two of the joints, but the additional plies need not be stripped, except as demanded by the limitations of the width of the retaining jaws on the testing device. When desired, special jaws may be constructed to accommodate the thicker plywood. If the number of plies exceeds three, the choice of joints to be tested shall be left to the discretion of the inspector, but at least one-half of the tests shall include the innermost joints. The specimens shall be submerged in water at room temperature for a period of 48 hours and dried for 8 hours at a temperature of 145°F (± 5°F), this is followed by two cycles of soaking for 16 hours and drying for 8 hours under the conditions described above. The shear specimens shall be soaked again for a period of 16 hours and tested while wet in a shear testing device, as illustrated in Figure 2, by placing them in the jaws of the device to which a load shall be applied at the rate of 600 to 1,000 pounds a minute until failure. The percentage of wood failure of the specimens shall be estimated.

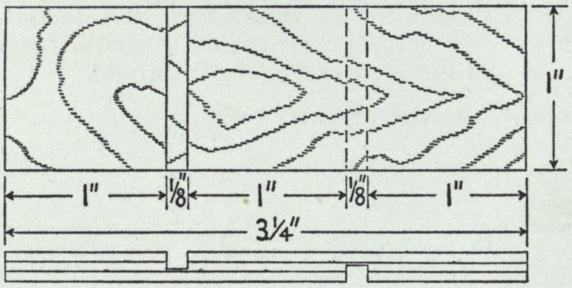


Figure 1. Shear specimen.

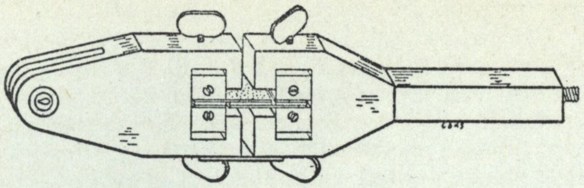


Figure 2. Jaws for shear test.

12.3.2 **Boiling test.**—Shear specimens, as described in paragraph 12.3.1, shall be boiled in water for 4 hours, and then dried for 20 hours at a temperature of 145°F (± 5°F). The specimens shall be boiled again for a period of 4 hours and tested while wet, as described in paragraph 12.3.1. The percentage of wood failure of the specimens shall be estimated.

12.3.3 **Fire test.**—A 5½- by 8-inch piece shall be taken from each of five selected test panels and placed on the stand, as illustrated in Figure 3 and subjected to a 800° to 900°C flame from a Bunsen-type burner for a period of 10 minutes or, in the case of a thin specimen, until a brown char area apears on the back side. The burner shall be equipped with a wing top to envelop the entire width of the specimen in flame. The top of the burner shall be 1 inch from the specimen face and the flame 1½ inches high. The flame shall impinge on the face of the specimen 2 inches from the bottom end. After the test the sample shall be removed from the stand and the glue lines examined for delamination by separating the charred plies with a sharp chisel-like instrument. Any delamination due to combustion shall be considered as failure, except when occurring at a localized defect permitted in the grade.

12.4 **Interpretation of tests.**

12.4.1 **Interior type.**—Total visible delamination of ¼ inch or more in depth and over 2 inches in length along the edge of a 6- by 6-inch test piece shall be considered as failure. When delamination occurs at a localized defect permitted within the grade, that test piece shall be discarded. The average number of cycles which the test pieces shall withstand is 10 or more. If the test pieces fail to meet this requirement, an additional series of 10 panels shall be selected and tested as described in paragraphs 12.1 and 12.2. Then the test pieces from both groups of 10, considered together, shall meet the above test requirement.

12.4.2 **Exterior type.**—Specimens cut through localized defects permitted in the grade shall be discarded. A test piece shall be rated by the combined results of both the cold-soaking test and the boiling test—generally 10 specimens in all. If the average wood failure of the 10 specimens is below 60 percent, or if more than one of the specimens is below 30 percent, the test piece fails. If more than one test piece fails, that panel fails. If one or none of the 10 panels fails, the shipment is accepted; if more than two fail, the shipment is rejected. If two fail, another series of 10 panels is tested. If one or none of the panels fails in this series, the shipment is accepted; otherwise it is rejected. If the average wood failure of the first 10 panels is less than 80 percent, a second series of 10 is tested, regardless of the number of failures. If the average wood failure of the 20 panels combined is less than 80 percent, the shipment is rejected.

12.4.2.1 If more than one panel fails the fire test, the shipment may be rejected; if one panel fails, a second series of five shall be tested, all of which must pass.

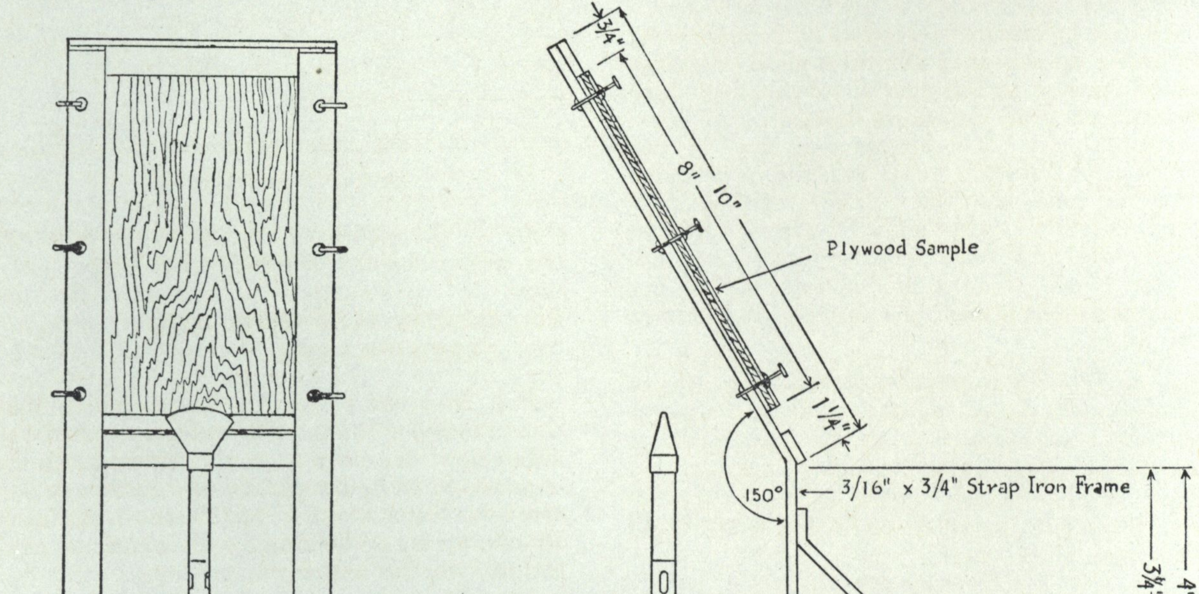


Figure 3. Apparatus for fire test.

13. STANDARD SIZES

13.1 Western softwood plywood is made in the standard sizes given in Table 3.

Grade	Width	Length	Thickness and Min. No. of Plies
Interior Type			
	Inches	Inches	Inches
A1-A1 Int. A1-D Int. A-A Int. A-B Int. A-D Int.	24 30 36 42 48	60 72 84 96 108 120	¼ (3-ply) ⅜ (3-ply) ½ (5-ply) ⅝ (5-ply) ¾ (5-ply) ¼ (3-ply) ⅜ (3-ply)
B-D Int.	24 30 36 42 48	60 72 84 96 108 120	¼ (3-ply) ⅜ (3-ply) ½ (5-ply) ⅝ (5-ply) ¾ (5-ply)
C-D Int.	24 30 36 42 48	96	5/16 (3-ply) ⅜ (3-ply) ½ (5-ply) ⅝ (5-ply)
B-B Int. (Concrete form)	24 30 36 42 48	96	½ (5-ply) ⅝ (5-ply) ¾ (5-ply)

Grade	Width	Length	Thickness and Min. No. of Plies
Exterior Type			
	Inches	Inches	Inches
A1-A1 Ext. A1-C Ext. A-A Ext. A-B Ext. A-C Ext.	24 30 36 42 48	60 72 84 96 108 120	¼ (3-ply) ⅜ (3-ply) ½ (5-ply) ⅝ (5-ply) ¾ (5-ply) ¼ (3-ply) ⅜ (3-ply) ½ (5-ply)
B-C Ext.	24 30 36 42 48	60 72 84 96 108 120	¼ (3-ply) ⅜ (3-ply) ½ (5-ply) ⅝ (5-ply) ¾ (5-ply)
C-C Ext.	24 30 36 42 48	96	5/16 (3-ply) ⅜ (3-ply) ½ (5-ply) ⅝ (5-ply)
B-B Ext. (Concrete form)	24 30 36 42 48	96	½ (5-ply) ⅝ (5-ply) ¾ (5-ply)

Table 3.—Standard Western softwood plywood sizes.

14. SIZE TOLERANCES

14.1 A tolerance of 1/64 (0.0156) inch over or under the specified thickness shall be allowed on sanded panels and a tolerance of 1/32 (0.0312) inch on unsanded panels.

14.2 A tolerance of 1/32 (0.0312) inch over or under the specified length and/or width shall be allowed but all panels shall be square within ⅛ (0.1250) inch.

15. INSPECTION

15.1 All plywood guaranteed to conform to the commercial standard grading rules is sold subject to inspection in the white only, except concrete-form material which may have a priming of oil or other preparation before shipment. All complaints regarding the quality of any shipment must be made within 15 days from receipt thereof.

15.2 If the grade of any plywood shipment is in dispute and a reinspection is demanded, the cost of such reinspection shall be borne by the seller and the shipment settled for on the basis of the reinspection report if the shipment is more than 5 percent below grade, or if it contains more than 1 percent of mismanufactured panels containing defects such as short core, lapped core, blisters, delamination, etc., which render the panel unfit for normal use. The buyer need not accept such defective panels shipped as any standard grade listed in this commercial standard.

15.3 If reinspection establishes the shipment to be 5 percent or less below grade, and to contain 1 percent or less of mismanufactured panels, the buyer pays the cost of reinspection and pays for the shipment as invoiced.

16. GRADE MARKING AND CERTIFICATION

16.1 In order to assure the purchaser that he is getting western softwood plywood of the grade specified, producers may individually or in concert with their trade association or inspection bureau, issue certificates with each shipment; or grade-mark each panel as conforming to this standard.

16.2 The following sets forth the grade marking and certification symbols for western softwood plywood adopted by the Douglas Fir Plywood Association to preserve the high standards of quality herein recorded and to insure that distributors and ultimate consumers receive the proper kind of plywood for their specific needs.

16.2.1 All standard-size panels are stamped or branded, to identify the various species of wood, as well as the type and grade of western softwood plywood. The following three facsimiles of grade-marks are given as examples:

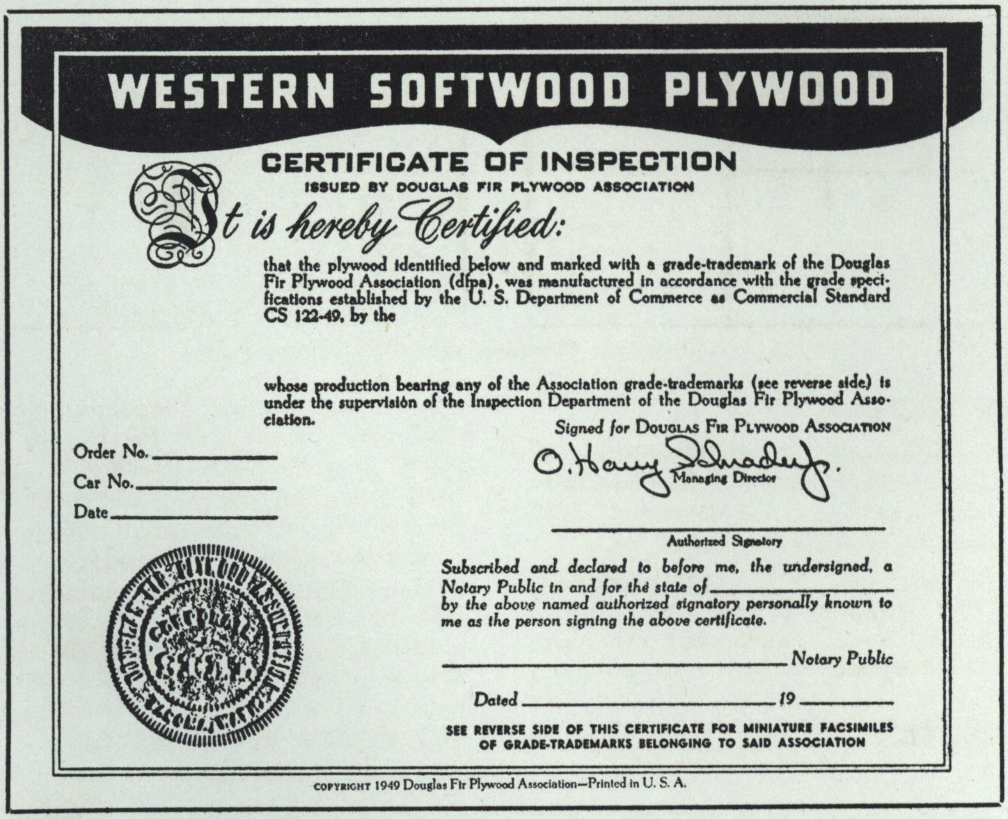
® HEMLOCK • int • B-D • dfpa

® REDWOOD • ext • A-A • dfpa

® SPRUCE • ext • A-C • dfpa

In each grade-mark, the kind of wood used on faces and backs is shown first; then "int" or "ext" to designate type of bond; then two letters to indicate quality of veneer in face and back; and finally the letters "dfpa," abbreviation for Douglas Fir Plywood Association.

16.2.2 The Douglas Fir Plywood Association maintains an inspection service for the careful grading of its members' products. By the use of certificates on carload lots, the first unloading buyer of a carload is assured of receiving plywood of the type and grade specified. A facsimile of the face of the Association's certificate of inspection is shown in figure 4.



WESTERN SOFTWOOD PLYWOOD

CERTIFICATE OF INSPECTION

ISSUED BY DOUGLAS FIR PLYWOOD ASSOCIATION

It is hereby Certified:

that the plywood identified below and marked with a grade-trademark of the Douglas Fir Plywood Association (dfpa), was manufactured in accordance with the grade specifications established by the U. S. Department of Commerce as Commercial Standard CS 122-49, by the

whose production bearing any of the Association grade-trademarks (see reverse side) is under the supervision of the Inspection Department of the Douglas Fir Plywood Association.

Signed for Douglas Fir Plywood Association

O. Harry Schrader Jr.

Managing Director

Order No. ____________

Car No. ____________

Date ____________

____

Authorized Signatory

Subscribed and declared to before me, the undersigned, a Notary Public in and for the state of ____________ by the above named authorized signatory personally known to me as the person signing the above certificate.

____________________ *Notary Public*

Dated ____________ *19* ______

SEE REVERSE SIDE OF THIS CERTIFICATE FOR MINIATURE FACSIMILES OF GRADE-TRADEMARKS BELONGING TO SAID ASSOCIATION

COPYRIGHT 1949 Douglas Fir Plywood Association—Printed in U. S. A.

Figure 4. Inspection Certificate of the Douglas Fir Plywood Association.

17. METHOD OF ORDERING

17.1 The established procedure in specifying kind, size and grade of plywood is to name the species, the number of plies, width, length, type, grade, whether sanded or unsanded and finished thickness.

17.2 Width always refers to distance across the grain of the face plies; length refers to the distance along the grain. Width should always be specified first.

17.3 If, for example, 100 pieces of spruce plywood ¼ inch thick, 48 inches wide, and 96 inches long, are required for interior or semi-exposed conditions, one side of which is to be nailed against a wall where it will not show, but the other side is to be exposed to view and painted, this material should be ordered as follows:

> Spruce plywood: 100 pcs., 3-ply, 48 in. by 96 in., Interior Type, Grade A-D, Sanded 2 Sides to ¼ inch thickness.

17.4 For most uses, sanded panels are desirable, but there are occasional uses where unsanded panels, of an A-D or other grade, are satisfactory. Such panels should be specified unsanded.

17.5 For special types of service, special features may be desirable in plywood panels, such as omission of oiling for concrete-form panels; extra thick faces for certain architectural treatments, etc. In such cases, the special treatment or feature should be stated after the standard specification. For example, if special features are desired in redwood **Exterior type**, grade A-A panel of ⅜-inch thickness, the order should read:

> Redwood plywood: 100 pcs., 3-ply, 48 in. by 96 in., Exterior Type, Grade A-A, Sanded 2 Sides to ⅜ inch thickness. (Add further special requirements.)

18. NOMENCLATURE AND DEFINITIONS

18.1 The various terms referred to herein are defined as follows:

Back.—The side reverse to the face of the panel.

Borer holes.—Voids made by wood-boring insects or worms.

Centers.—See cores.

Checks.—Small splits running parallel to the grain of the wood caused chiefly by strains produced in seasoning.

Cores.—The core or center is the center ply in a plywood panel having an odd number of plies.

Crossbanding.—A crossband in a plywood panel containing five or more plies is a ply of veneer in which the grain is at right angles to the grain of the face plies. The crossbands are the even-numbered veneers in such construction.

Defects, open.—Checks, splits, open joints, cracks, loose knots, and other defects interrupting the smooth continuity of the panel surface.

Exterior.—Refers to the type of plywood intended for outdoor or marine uses: this type is bonded with adhesives, affording the ultimate in water and moisture resistance, (see pars. 8.1 and 11.1). (There are several grades within this type.)

Face.—The better side of a panel in any grade calling for a face and a back; also, either side of a panel where the grading rules draw no distinction between faces. The quality of the face and back determines the grade of panel within either the **Exterior** or **Interior type.**

Heartwood.—The darker-colored wood occurring in the inner portion of the tree, sometimes referred to as "heart."

Interior.—Refers to the type of plywood intended for inside uses and for construction applications where subjected to occasional wetting or deposits of moisture (see pars. 8.1 and 10.1). (There are several grades within this type.)

Knots.—Cross section of a branch or limb whose grain usually runs at right angles to that of the piece in which it is found.

Knotholes.—Voids produced by the dropping of knots from the wood in which they were originally embedded.

Lap.—A condition where the veneers used are so misplaced that one piece overlaps the other rather than making a smooth butt joint.

Patches.—Insertions of boat-shaped sound wood glued and placed into panels from which defective portions have been removed.

Pitch pocket.—A pitch pocket is a well defined opening between rings of annual growth, usually containing, or which has contained, more or less pitch, either solid or liquid.

Pitch streak.—A pitch streak is a well defined accumulation of pitch in a more or less regular streak.

Plugs.—Sound wood, usually circular, for replacing defective portions which have been removed. Plugs usually are held in veneer by friction only until veneers are bonded into plywood. Synthetic plugs are of fiber and resin aggregate; they are used to fill openings and provide a smooth, durable surface.

Sapwood.—The lighter-colored wood occurring in the outer portion of the tree, sometimes referred to as "sap."

Shim.—A long, narrow patch not more than 3/16 inch wide.

Streak.—See Pitch streak.

Torn grain.—A marked leafing or separation on veneer surface between spring and summer wood.

Veneer.—Thin sheets of wood.

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date__________________________

Commodity Standards Division,
National Bureau of Standards,
Washington 25, D. C.

Gentlemen:

We believe that the Commercial Standard CS122-49 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the
production[1] distribution[1] purchase[1] testing[1]
of western softwood plywood.

We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of
authorized officer__________________________
(in ink)

(Kindly typewrite or print the following lines)

Name and title
of above officer__________________________

Organization __________________________
(Fill in exactly as it should be listed)

Street address__________________________

City, Zone, and State__________________________

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[1] Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General Support" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. **Enforcement.**—Commercial Standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. **The acceptor's responsibility.**—The purpose of Commercial Standards is to establish for specific commodities, nationally recognized grades or consumer criteria and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable, in the production distribution, or consumption of the article in question.

3. **The Department's responsibility.** — The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. **Announcement and promulgation.**—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active valid opposition, the success of the project is announced. If, however, in the opinion of the Standing Committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

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